

A Good Teaching Technique: WebQuests

ERDOGAN HALAT

Abstract: In this article, the author first introduces and describes a new teaching tool called WebQuests to practicing teachers. He then provides detailed information about the structure of a good WebQuest. Third, the author shows the strengths and weaknesses of using WebQuests in teaching and learning. Last, he points out the challenges for practicing teachers and administrators.

Keywords: Internet, mathematics, teachers, WebQuests

The examination and understanding of the implications of learning theories on curriculum are goals of mathematics education teacher preparation programs at Florida State University, University of Georgia, Michigan State University, University of Chicago, University of Illinois, and others. In addition to knowledge of pedagogical theories, preservice teachers are also expected to be competent in the use of technology for teaching and learning. The Internet has become an open resource with which anyone can find and access a wide range of information in seconds.

According to Joseph (2000) and Summerville (2000), the Internet has a great influence on both students and teachers. We must also remember that although the Web has a lot of valuable information, it also has useless information. The misuse of the Internet concerns parents, educators, administrators, teachers, and others (Mason 2000). Therefore, Dodge (2001) developed a new teaching and learning activity that uses the Internet in the classroom and meets the concerns of those mentioned earlier.

What Is a WebQuest?

A WebQuest is a computer-based teaching and learning model in which learners are actively involved in an activity or situation and use the Internet as a resource.

Likewise, Lamb and Teclehaimanot (2004) claim that WebQuests are a student-centered and project-based approach to teaching and learning, which a variety of theories, such as constructivist philosophy, critical and creative thinking, situated learning environments, cooperative learning, and engaged learning, support.

The WebQuest has become prominent in many educational areas and has received considerable attention from teachers and educators since Dodge (1998) and March (1998) developed it. Dodge defined two types of WebQuests: short-term and long-term. According to Dodge, the instructional goal of a short-term WebQuest is the acquisition and integration of knowledge. At the end of a short-term WebQuest, lasting one to three class periods, a learner should have gained a significant amount of new information and made sense of it. The instructional goal of a long-term WebQuest, however, is to extend and refine the knowledge. After completing a long-term WebQuest, a learner should have examined a body of knowledge, transformed it in some way, and showed an understanding of the material or knowledge gained by creating any kind of work (for instance, defining a stance and defending it, designing new WebQuests, and constructing new problems or tasks) that others can respond to, online or offline. A long-term WebQuest should be completed between one week and one month in a classroom setting.

I recommend WebQuest.org, a database in which those who are not familiar with WebQuest can find many well-designed sample works. This database, supported by San Diego State University, contains over 2,500 WebQuests for specific grade levels (including K-2, 3-5, 6-8, 9-12, and adult) and curriculum areas (for example, art, music, business, math, science, technology, professional and life skills, and physical education). In addition, any of the WebQuests in the database can serve as a lesson plan for the readers (Dodge 2007).

Erdogan Halat, PhD, is an assistant professor at Afyon Kocatepe University, Afyonkarahisar, Turkey. Copyright © 2008 Heldref Publications

The Structure of a WebQuest

According to Dodge (2001) and March (2000), well-designed WebQuests—either short-term or long-term—consist of the following critical attributes.

Introduction

This part introduces the students to what they will learn and do during the WebQuest. One important characteristic is to present an activity or topic within a scenario or story that is attractive, visually interesting, and fun to the pupils who will be playing a role or creating something.

Task

This section is the key part of any WebQuest. It includes well-prepared and well-organized tasks and subtasks designed around the major themes of a topic to be learned. A complex task that the learners must complete is always assigned at the beginning of the scenario or story. The task should be firmly anchored in a real-life situation, doable, and interesting. The prerequisite knowledge necessary for the learners to accomplish the task is provided by the subtasks, which are much easier than the main task and focus on different aspects of it. The number of subtasks in each main task might differ based on the topic and the teachers' expectations. The learners are expected to gain different knowledge from each subtask and use the Internet as a resource while working on it. They use Web sites to retrieve formulas or information with which to complete the subtasks. For instance, finding the circumference or the area of an irregular geometric figure might be a main task. Breaking this irregular figure into smaller, regular figures, such as squares, rectangles, triangles, or circles, might be a subtask. Examining and gaining the knowledge imparted by each of the problems associated with the figures and their properties (further subtasks) help learners to find the circumference or the area of an irregular geometric figure.

Process

This stage clearly explains and illustrates how the learners should follow the directions to achieve the complex task. The process stage should be broken down into detailed steps.

Resources

Resources include the addresses of Web sites teacher-selected based on the learners' needs. The Web sites should be well designed, professional, and reliable. The learners use them to obtain information to complete the subtasks. Other information sources might include experts available via e-mail, real-time conferencing, or searchable databases.

Evaluation

This includes a rubric with which the learners can evaluate themselves and compare and contrast what

they have learned or accomplished. The teacher creates this rubric based on his or her expectations of the learners. In addition, classroom teachers can evaluate students' work.

Conclusion

This part reminds the learners what they have learned or what they were supposed to learn. It also encourages them to extend the experience into other domains (e.g., Halat 2007; Kelly 2000; Yoder 1999).

Strengths and Weaknesses of Using WebQuests in Teaching

According to Schofield (1995), using technology in teaching and learning has positive effects on students' motivation, attitudes, and achievements; it also supports peer interactions in the classrooms. For example, according to Varank (2005), using computers enhances students' motivation because while working on computers, students enjoy more, work harder, and show more involvement in the classroom. It is clear that teachers and textbooks cannot provide all of the information necessary for contemporary problem solving and decision making (Varank 2005). Therefore, current data and new approaches in learning can be brought into the classroom through the Internet. From this perspective, using WebQuests can be a reliable and secure tool to present this information to students.

Strengths of This Strategy

- Is an alternative teaching technique that enhances students' motivation in class
- Serves as an alternative assessment tool of students' learning
- Gives teachers an idea of the students' degree of acquisition of knowledge and implementation of the knowledge
- Provides teachers an opportunity to see and assess students' ability in using technology for learning
- Enhances teachers' creativity in thinking and writing, such as finding interesting and funny stories or scenarios and combining these with math or other subjects.
- Enhances teachers' higher-order thinking skills, such as finding topic-related Web sites and examining and selecting professional, well-prepared, and reliable Web sites.
- Requires students to be active learners
- Allows students to use Internet as an important tool (Halat 2007).

Weaknesses of This Strategy

Students are expected to follow the directions on the WebQuests and visit the reliable links selected by the teachers to get new information. Therefore, students may not return to the WebQuest portals to complete

their work if they are distracted by other Web sites that they find more appealing. Furthermore, students may not want to work on the WebQuests and do the tasks required if they do not like the scenario or the topics or if they find the tasks difficult.

Challenges for Teachers and Administrators

Much of what I have discussed pertains to positive aspects of using technology in the classroom. Furthermore, teachers, parents, scientists, educators, policy-makers, and industrialists want the new generation to be well educated and equipped with computer skills.

According to Hardy (1998), successful technology adaptation requires careful planning and plenty of time. If teachers plan carefully and find the time to work on this technique, they might successfully add WebQuests to their teaching strategies. The following are some of the challenges of using WebQuests for the teachers:

- The possibility of lack of access to the Internet via a fast and reliable connection
- The time needed by the teacher to develop a WebQuest not always available
- Finding reliable links for resources for the WebQuest (Halat and Jakubowski 2001)

Success in the next century will depend on access to information. Students can use the Internet as an important tool to achieve this goal. Using the Internet, students can share ideas with their peers, communicate with others from different cultures, discuss ideas with professionals, and so on. In other words, the Internet is a great educational resource for teachers and students.

To use WebQuests successfully in classrooms, it is important that administrators are convinced of their

benefits. They should then provide the necessary physical support by establishing computer labs with Internet access to launch the activity at school. Equally important is the professional development of their staff in the form of training, encouragement, and support in the appropriate use of WebQuests.

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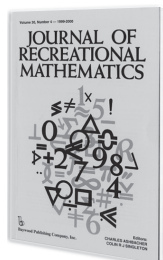
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